

The Ponca City

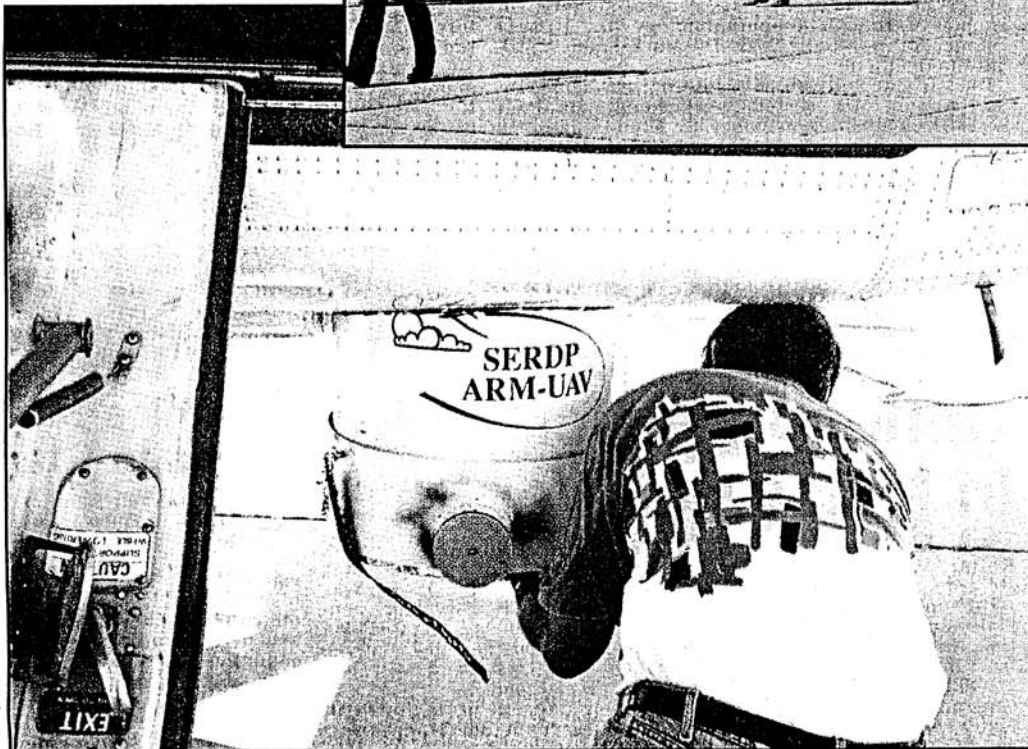
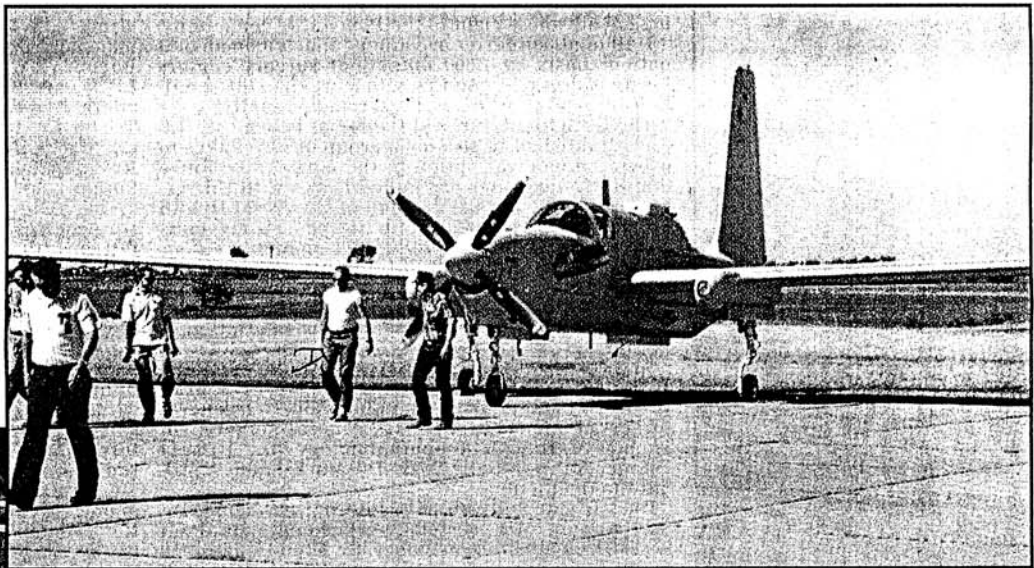
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A FORMER SPY PLANE, a German-built Egret (right), is being used in a high tech experiment in the area to measure how much solar energy clouds absorb. The high altitude plane is part of a "cloud sandwich" experiment being flown out of the Blackwell-Tonkawa Airport. Scientists and technicians from around the world have gathered at the airport and at the ARM site near Lamont to help collect and process the data. (News Photo by Louise Abercrombie)



THE TWIN OTTER being used in a high tech experiment involving clouds and the Atmospheric Radiation Measurement Short-wave Experiment instrumentation is checked out (at left) before the experimental research flight from the Blackwell/Tonkawa Airport. (News Photo by Louise Abercrombie)

Planes Soak Up Data From Clouds As ARM Studies Head for the Sky

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By LOUISE ABERCROMBIE
News Staff Writer

BLACKWELL-TONKAWA AIRPORT — The Department of Energy (DOE) and the Department of Defense (DOD) are looking for a few good clouds.

The two government agencies are teaming up on a "cloudy" experiment in northern Oklahoma and southern Kansas that will focus global attention on this area.

The multi-million project ties in with the Atmospheric Radiation Measurement (ARM) station at Lamont, which is collecting data on clouds and global warming and could eventually save the planet. The \$10 million ARM station in Grant County is the first of its type in the world. However another is due to be operational in New Guinea in March.

On Monday, national and international scientists and technicians assembled at the Blackwell-Tonkawa Airport to gather data from an experiment involving two extremely different aircraft. Using an Twin Otter and a high altitude Egret flying in "stacked" formation, the instrument loaded planes were soaking up data.

Folks may have notice the interesting planes, which have been hangared here at the Conoco aviation center and at Greenwood Aviation. The Egret, a German-built reconnaissance plane, maintains an altitude of about 43,000 feet as it collects data and transmits to the payload ground station. The Egret flies above the clouds.

Meanwhile the Twin Otter, which had been a passenger plane, flies under the cloud formation and the Egret at about 1,500 feet. This data is stored in the electronic packed plane for later processing.

While they were not flying in parallel with the Egret and Otter, several other platforms providing data at key altitudes included

weather satellites and an ER-2 high altitude research plane (a research version of the U-2 spy plane), owned by NASA, providing data at 65,000 feet.

Monday the flight plan swung north to Coldwater, Kan., and as far west as Vici, (18 miles south of Woodward). Although the Lamont instrument exterior and interior instrument site was of great interest there are other ground station monitoring sites. One leg of the flight was from Lamont, to Byron, and Coldwater, Kan., while the other went from Lamont to Ringwood and Vici.

Basic purpose of the experiment, according to Dr. John Vitko of Sandia National Laboratories, director of the Atmospheric Radiation Measurement Enhanced Shortwave Experiment, has nothing to do with national defense. However DOD, teamed with DOE, is using technology developed for defense applications for an environmental peace time application and has nothing to do with defense, Vitko said.

The DOD portion is funded through a program called Strategic Environment Research and Development Program SERDP. The collection of this data is geared predicting global climate change. In April 1994 some of that technology had been used in the same area with an unmanned plane.

Mission of the experiment was to try to understand how much solar energy clouds absorb, according to Dr. Vitko. Also to discover if the clouds absorb more solar energy than currently believed by global circulation models, which some studies have suggested. The experiment measured both the amount coming down from the sky and reflecting up from the clouds. Dr. Francisco P. J. Valero, Scripps Institute of Oceanography and chief scientist for the experiment said, "We think we can help people sharpen

their predictions."

Vitko explained the experiment has practical implementations for agriculture, water management, as well as global climate change on a regional scale and a large scale. Vitko said, "The energy absorbed in the sky heats the air and drives the wind circulation and that in fact changes the moisture patterns and gives rise to dry seasons here."

"The present experiments are being done here in Oklahoma because of the ARM site at Lamont that has wonderful instruments on the grounds," Vitko said.

Meanwhile on the ground, the air data was being processed by numerous computers, scientists and technicians. Vitko explained they had hoped for more clouds for the experiment and ordinarily in Oklahoma at this time of year that is the case. He said there were good clouds on Sept. 29 and Oct. 13. Data gathered from these "cloud sandwiches" will be used to improve computer models that predict global climate change.

When the data is processed it will then be available on the Internet, according to Kathryn S. Lang, Arm Public Information Officer.

Among the 15 to 20 different scientific groups represented at the experiment at the Blackwell-Tonkawa Airport, were agencies, laboratories, universities and private enterprise.

Observing and taking part in the data gathering experiment included representatives Sandia National Laboratories, California and New Mexico; Pacific Northwest Labs, Richland, Wash.; Livermore National Laboratories, Calif.; Los Alamos National Laboratories; several NASA, Labs; University of California, San Diego, Penn State, Colorado State and others, and several private labs.